APPARATUS AND METHOD FOR FSK DEMODULATION WITH INTEGRATED TIME AND FREQUENCY TRACKING

ABSTRACT OF THE DISCLOSURE

An FSK receiver comprising: 1) demodulation circuitry for receiving an incoming FSK signal and generating a baseband signal comprising an amplitude modulated symbol stream of Logic 0 symbols and Logic 1 symbols having a data rate, R; 2) auto-correlation circuitry for sampling the baseband signal S times during each symbol and generating an auto-correlation function comprising a sample stream of N-bit samples having a data rate, SxR, and having positive-going peaks approximately coinciding with the center of the Logic 1 symbol in a 010 sequence in the baseband signal and negative-going peaks approximately coinciding with the center of the Logic 0 symbols in a 101 sequence in the baseband signal; and 3) decision circuitry for receiving the auto-correlation function and deciding a logic level of a first symbol as a function of: 1) a comparison of a signal level of a center sample of the first symbol and a mean signal level of the auto-correlation function and 2) a comparison of the signal level of the center sample of the first symbol and a signal level of a center sample of a second symbol preceding the first symbol.